I claim:

1. An optical waveguide device, comprising,

at least one laser diode; and

at least one high refractive index contrast slab waveguide coupled to receive light from the at least one laser diode,

wherein the slab waveguide is deposited by biased pulsed DC plasma vapor deposition.

2. The optical waveguide device of claim 1, wherein the slab waveguide is formed from a highly amorphous film.

3. The optical waveguide device of claim 1, wherein the slab waveguide is highly optically transparent.

4. The optical waveguide device of claim 1, wherein the slab waveguide has a high surface smoothness.

5. The optical waveguide device of claim 1, wherein the high-refractive index contrast slab waveguide includes a lens duct.

6. The optical waveguide device of claim 1, wherein the at least one laser diode comprises a diode array.

7. The optical waveguide device of claim 1, wherein the high refractive index contrast slab waveguide includes a high refractive index active waveguide and an intermediate refractive index passive cladding.

8. The optical waveguide device of claim 7, wherein the high refractive index contrast slab waveguide is folded in the plane of the slab.

9. The optical waveguide device of claim 7, wherein the intermediate passive cladding is thick enough in the vertical axis to capture a substantial amount of light emitted from the at least one laser diode.

10. The optical waveguide device of claim 1, wherein the high refractive index contrast slab waveguide includes a mode-size converter.

11. The optical waveguide device of claim 1, wherein the at least one laser diode is a vertical cavity surface emitting laser and the high refractive index contrast waveguide is deposited over the vertical cavity surface emitting laser.

12. The optical waveguide device of claim 1, wherein the high refractive index contrast slab waveguide includes an array of waveguides.

13. The optical waveguide device of claim 11, wherein a mode size of an optical beam transmitted by the high refractive index contrast slab waveguide is less than a mode size of an incident optical beam.

14. The optical waveguide device of claim 12, wherein the high refractive index contrast slab waveguide includes at least one vertical reverse taper.

15. A method of coupling pump light into a gain medium, comprising:

depositing the gain medium by a biased pulsed-DC plasma vapor deposition process;

forming a high refractive index contrast waveguide from the gain medium; and

directing pump light into the high refractive index contrast waveguide.

16. The method of claim 15, wherein forming a high refractive index contrast waveguide includes patterning the gain medium.

17. The method of claim 16, further including depositing an intermediate refractive index contrast material over the high refractive index contrast waveguide.

18. The method of claim 16, wherein patterning the gain medium includes forming a lens duct.

19. The method of claim 16, wherein patterning the gain medium includes forming a horizontal taper.

20. The method of claim 16, wherein depositing the gain medium includes forming a vertical taper.